



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| <p>(54) Title: <b>VENTILATOR FOR VENTILATED ROOFS</b></p> <div data-bbox="418 1186 1372 1596"> </div> <p>(57) Abstract</p> <p>A ventilator at the ridge of a building roof intended to allow external air to escape, which as a result of natural draft flows from the eaves up towards the ridge of the roof on the underside of profiled run-off panels (1). It consists substantially of, on the one hand, a cover plate (8) consisting of two flanks joining over an opening (2) between opposite run-off plates (1) at the ridge, and on the other hand of a cap (3) above the said cover plate (8). Between the cover plate (8) and cap (3) is a space. The cap (3) is perforated at its lower edges extending over opposite run-off panels (1). The cover plate (8) has also perforated rows at right angles below the perforations of cap (3) as well as a perforation at the top in the area of the ridge. At the upper ends of the run-off panels opposite the ridge of the roof is provided a seal between the said panels and the cover plate (8).</p> |           |   |

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## VENTILATOR FOR VENTILATED ROOFS

## TECHNICAL SCOPE

The present invention relates to a ventilator intended for removal at the top of air from below a ventilated roof covered with preferably trapezoidally shaped run-off panels.

## TECHNOLOGICAL BACKGROUND

By way of external roof covering on buildings etc. use is frequently made at present of metal plates in order to prevent the penetration of rain and snow from above. These "run-off panels" are often corrugated with ridges and channels in the direction of the roof's inclination. Towards the top the inclined areas of the roof meet in ridges, for instance in the case of pitched roofs and hipped roofs. It is desirable for the said run-off panels to be maintained in one way or another at or close to the temperature of the external air. The principal reason for this consists in the fact that snow on the roof must not melt and the water therefrom must not run down and freeze to ice at the base of the roof. If this happens accidents may be caused as a result of falling bits of ice. The melt water may also accumulate in front of these walls of ice and penetrate the house through the joints between the roof panels.

A good method of maintaining the roof panels at a temperature close to that of the external air consists in allowing external air to rise by natural draft below the roof panels and to be allowed to escape at the top in the ridge area. It has however proved difficult to achieve simple and cheap ventilation in the ridge area, enabling such air to escape while at the same time preventing rain and snow from being blown under the roof covering while likewise eliminating any possibility of birds and insects getting in the causing damage.

It is the object of the present invention to solve these problems. This object has been achieved by means of a ventilator designed to permit air to escape from a building, whereby the said roof is provided with a covering of run-off panels extending from the respective eaves of the roof upward towards a ridge, with an opening provided along the extent of the ridge. The ventilator



comprises a cap extending along the ridge of the roof and covering the opening between the roof sections with the aid of a cover plate so arranged as to cover the opening below the cap and above the roof panels. The cap is preferably provided with a perforation  
5 extending at least along its longitudinal sides. Both the cap and the cover plate have two flanks meeting in an apex along the centre line of the ridge of the roof. The cover plate may be provided with a perforation both at its apex and along its longitudinal sides.

The ventilator in accordance with the invention is especially  
10 suitable with roof coverings consisting of corrugated panels, the channels of which extend at right angles in respect of the ridge of the roof, whereby every channel of the corrugated panels is provided with a sealed face along the ridge opening. The sealing is brought about preferably by beating the corrugated plate so as to achieve a  
15 wall along the opening or by means of strips of compressible material such as KORSSELL.

The cover plate is located along the ridge opening so that its perforation along the longitudinal sides is above the run-off panels. As a result condensation water forming on the underside of the cap as  
20 well as rain and snow water penetrating through perforations in the cap can drop down onto the cover plate and run down through perforations along the longitudinal sides and down onto the run-off panels.

The cap is so located that its perforation is substantially above the cover plate perforation along the longitudinal sides.

25 The perforations in the cap and cover plate respectively consist of holes so small that relatively large insects cannot pass through. This also ensures that the ventilator does not permit birds to enter the building through the ventilator.

The invention is described in detail in the subsequent claims,  
30 through an embodiment and in the attached drawings whereby

figure 1 shows part of a pitched roof seen at an angle from above;

figure 2 shows a cross-section through the ridge of the roof shown in figure 1;

35 figure 3 shows a section of the roof in accordance with figure 2



seen from above.

#### EMBODIMENT

The pitched roof in accordance with figure 1 is provided with a covering 1 of corrugated run-off panels extending from the  
5 respective eaves up towards the ridge of the roof where an opening, 2, is provided along the extend of the ridge. The ventilator in accordance with the invention comprises a cup, 3, extending along the ridge of the roof and covering the opening, 2. The cap, 3, comprises two plane flanks, 4, each of which is parallel with the  
10 respective section of the roof and provided along the longitudinal sides with a substantially vertical wall, 5, linking the respective flank, 4, with a base, 6, which in turn supports the cap, 3. The cap, 3, is provided with a perforation, 7, extending along the longitudinal side of the respective flank, 4.

15 A cover plate, 8, is so arranged as to cover the opening, 2, below the cap, 3, whereby the cover plate, 8, consists of two plane flanks, 9, each of which is parallel with the respective flank, 4, of the cap, 3, and abuts the respective section of the roof. The cover plate, 8, is provided on the one hand with a perforation, 10, extending  
20 in a zone along its centre line and partly with a perforation, 11, extending in a zone along its longitudinal side. The respective side perforation, 11, of the cover plate, 8, is arranged vertically below the respective perforation, 7, of the cap, 3, and on that part of the plane flank, 9, which is above the roof covering, 1.

25 The roof covering, 1, of corrugated steel panels comprises channels extending at right angles to the ridge of the roof and is provided with area beaten up so as to form a sealing wall, 10, on either roof section along the opening, 2.

The entire perforation consists of 3 mm dia. holes at 6 mm centres.

30 With this arrangement air flows from outside along the underside of the roof covering from the eaves up to the ridge of the roof and out through the central perforation in the cover plate and further through the perforation in the cap along its longitudinal sides following the path indicated by the fully drawn arrow lines in figure 2.



Any incoming rain and snow water or condensate from the ventilator runs off along the roof covering following the path indicated by the dashed arrowed lines in figure 2.

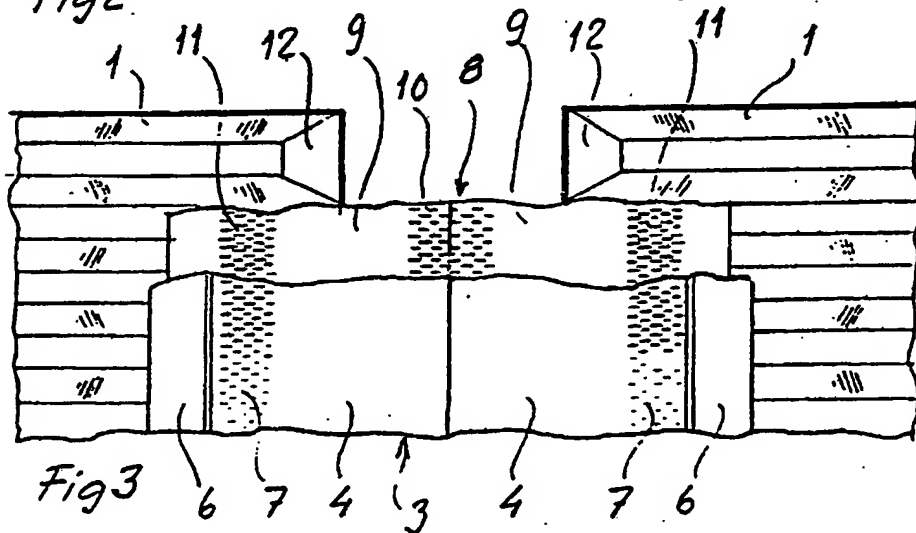
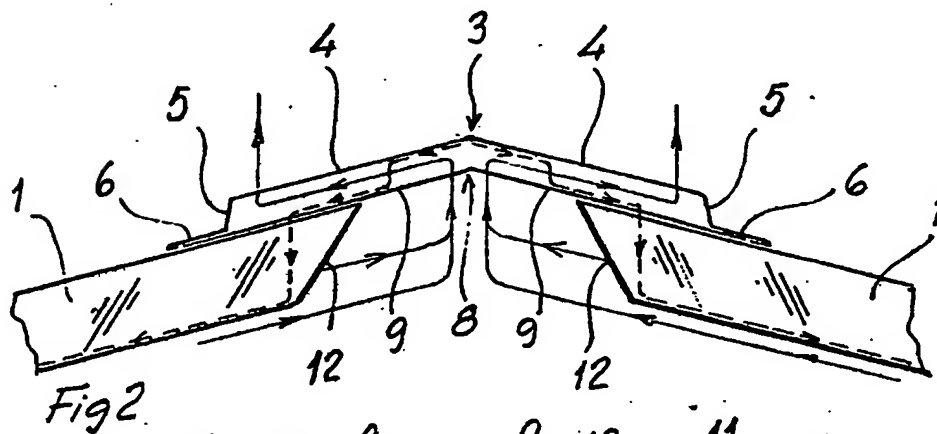
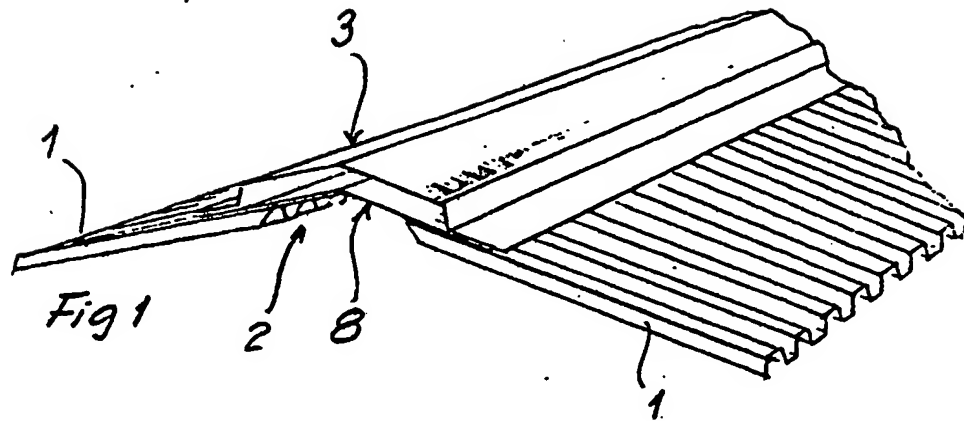


## PATENT CLAIM

A ventilator at the ridge of a building roof intended to allow external air to escape, which as a result of natural draft passes from the eaves up towards the ridge of the roof on the underside of the profiled run-off panel (1) characterised in that on the one hand a cover plate (8) is provided over a design opening (2) between opposite run-off panels (1), the said cover plate consisting of two flanks (9) joining at the ridge of the roof, whereby a row of perforations is produced extending down over and past end seals (12) of adjacent run-off panels (1), with a row of perforations (11) being provided also in this area, and on the other hand by a cap (3) with two flanks (4) joining at the ridge of the roof on top and at a distance from the cover plate (8) which also extends downward over the run-off panels and ends in a downward facing wall (5) and a base (6) in the lowest part of the cover plate (8), the said cap having perforations in the area above the lower rows of perforations (11) of the cover plate (8).



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SUBSTITUTE SHEET





# INTERNATIONAL SEARCH REPORT

International Application No. PCT/SE84/00017

| <b>I. CLASSIFICATION OF SUBJECT MATTER</b> (If several classification symbols apply, indicate all) <sup>1</sup><br>According to International Patent Classification (IPC) or to both National Classification and IPC <sup>3</sup><br><p style="text-align: center;">F 24 F 7/02; E 04 D 3/40</p>  |  |   |
|---|--|---|
| <b>II. FIELDS SEARCHED</b><br>Minimum Documentation Searched <sup>4</sup>   |  |   |
| Classification System   | Classification Symbols   |   |
| IPC 3   | F 24 F 7/00-7/02; E 04 D 1/30, 3/40, 13/16; F 23 L 17/00-17/16   |   |
| US C1   | 52: 90; 277; 278; 712; 713; 98; 42; 61; 66; 83   |   |
| Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched <sup>5</sup>  |  |   |
| SE, NO, DK, FI classes as above   |  |   |
| <b>III. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <sup>11</sup>   |  |   |
| Category <sup>6</sup>   | Citation of Document, <sup>10</sup> with indication, where appropriate, of the relevant passages <sup>12</sup> | Relevant to Claim No. <sup>13</sup>                               |
| Y   | DE, B2, 2 430 959 (ALCAN ALUMINIUMWERKE GMBH) 9 August 1979  | 1   |
| A   | AT, B, 323 376 (ASSMAN KUNST-STOFFINDUSTRIE GESELLSCHAFT) 10 July 1975   | 1   |
| Y   | AT, B, 365 270 (G LAIMER) 28 December 1981   | 1   |
| Y   | US, A, 835 966 (F LYSTER) 13 November 1906   | 1   |
| Y   | US, A, 2 868 104 (K A HONHOLT, J T WALKER) 13 January 1959   | 1   |
| A   | CA, A, 1 039 557 (L L WALLEE) 3 October 1978   | 1   |
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| <b>IV. CERTIFICATION</b>  |  |   |
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